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PROMOTION OF ECONOMIC AND TECHNICAL CO-OPERATION BETWEEN AFRICA AND LATIN AMERICA */

*/ Joint ECA/CEPAL paper prepared in the framework of project INT/80/908.

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/I. INTRODUCTION

I. INTRODUCTION

1. The present document has been prepared jointly by the secretariats of the Economic Commission for Africa (ECA) and the Economic Commission for Latin America (CEPAL) for submission to the intergovernmental expert meeting on interregional co-operation within the framework of a joint project to promote Economic and Technical Co-operation among developing countries (UNDP Project INT/80/908).

2. Part I gives an introductory background to the present meeting, which is the first of its kind involving the two developing regions. Parts II, III and IV present in summary form specific proposals and recommendations on ways to forge new, or strengthen existing, technical and economic co-operation in three respective fields: manpower development, interregional trade, and science and technology. Part V is a concluding section containing suggestions for possible future follow-up action.

3. It is worth recalling, however briefly, the events leading to the current project, of which the meeting of African and Latin American governmental experts is the culmination. A short account is also in order regarding the preparatory activities which have been carried out under the project as a prelude to the current meeting.

4. In February and May 1977, at meetings of ECA and CEPAL member States, the countries of Africa and Latin America adopted resolutions 302 (XIII) and 363 (XVII), respectively, on the strengthening of existing technical co-operation arrangements and promotion of new programmes of technical co-operation among the countries of their regions, using for that purpose their respective regional commissions within the framework of their mandates and available resources. Pursuant to these resolutions, the secretariats of the two commissions agreed on the need to design concrete projects for joint implementation, beginning with three key sectors, namely manpower development, interregional trade, and science and technology.

5. In March and April 1979, the initiatives taken by the two secretariats in this direction were endorsed by their respective Commission's sessions, which reaffirmed their earlier mandates. Thus, in resolution 355 (XIV), ECA endorsed the ECA/CEPAL interregional programme for the promotion of technical and economic co-operation between Africa and Latin America, while CEPAL, in its resolution 387 (XVIII), noted "with satisfaction and approval the decision of the Executive Secretaries of ECA and CEPAL to carry out interregional technical and economic co-operation activities between Africa and Latin American countries in the areas of trade, training and science and technology".

6. It may be added that the present project is also in keeping with the spirit of decisions reached at the Group of 77 Conference on Economic Co-operation among Developing Countries (ECDC), held in Mexico City in September 1976, and at the United Nations Conference on Technical Co-operation among Developing Countries (TCDC), held in Buenos Aires, in August/September 1978.

7. The ultimate objective of the project is the promotion of mutual economic and technical co-operation between Africa and Latin America, i.e., the identification and formulation of possible joint activities to be performed by the countries of both regions. It is envisaged that co-operation between the two regions could take any or all of the following forms: i.e., co-operation between governments of the two regions through bilateral agreements; between one country in Latin America and several countries in Africa, or vice-versa; between two or more Latin American

/countries and

countries and two or more African countries; or between subregional or regional bodies of both regions. It is expected that these forms of co-operation would lead to the involvement of non-governmental actors from both regions.

8. The preparatory activities, which have led to the convening of the present meeting should be seen as a modest first step towards the fulfilment of these long-run objectives. Performed over a period of one year, these activities were designed to accomplish basically an assessment of the potentialities for mutual co-operation between Africa and Latin America through the identification of specific appropriate joint actions in the areas of manpower development, trade, and science and technology.

9. In pursuit of this aim, the two secretariats, assisted with funds from UNDP which were augmented by their own resources, conducted studies in the three priority sectors chosen. These studies were carried out with the help of consultants in both the African and Latin American regions and their reports are available to this meeting. Due to limitations of resources, the consultants were compelled to confine attention to a few selected countries which they visited to collect information. The countries were Algeria, Nigeria, Senegal and Zambia in the case of Africa; and Argentina, Brazil, Colombia, Mexico, Peru and Trinidad and Tobago, in the case of Latin America. The consultant's reports were then studied by the ECA and CEPAL secretariats and used, together with desk studies made by the secretariats themselves, as an input into the preparation of the present documents. Needless to say, the findings and conclusions of these studies are intended to serve as a basis for possible co-operative actions, not only by the countries listed above, but by the remaining African and Latin American countries as well.1/

10. Proposals and recommendations contained in this paper are offered as a basis for discussion. They point to potential participation by all the countries of both regions in co-operative activities and suggest a framework for such activities. The meeting is invited to debate them freely and reach its own conclusions. To assist it in its deliberations, the two secretariats have put at the disposal of the meeting, in addition to the present paper, the original reports prepared by the consultants. These reports analyse the existing state of interregional co-operation between African and Latin American countries with particular reference to the three selected fields. They also point out existing institutions, national, subregional and regional, in the countries of both regions which could be used to promote and serve as mechanisms for economic and technical co-operation. Different mechanisms for such co-operation are also suggested.

11. Among other important subject which might be given due attention in TCDC and ECDC efforts of the type under discussion between Latin America and Africa are the following: the role of the rural sector; the development and promotion of domestic trade and regional and interregional trade in complementary raw materials and technologies for industrialization; the development and utilization of the range of manpower required for industrialization; the development of a transport and communications system of good quality in Africa and in Latin America and between Africa and Latin America to facilitate trade and other economic co-operation efforts; the design and development of appropriate science and technology policies and plans as well as the instrument to implement such policies and plans, the design and

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1/ On Trade, the studies are documents ST/ECA/WP.1/2 and Supplement 1 and E/CEPAL/SEM.4/L.1; on Human Resources, ECA document ECO/ETC/I/2 and CEPAL document E/CEPAL/SEM.4/L.2; on Science and Technology, see CEPAL document E/CEPAL/SEM.4/L.3 and ECA document ECO/ETC/I/3.

/development of

development of techniques and institutions for technology acquisition (i.e., local development and transfer), etc.

12. In addition to the above consideration in any kind of bilateral and/or multilateral agreement for co-operation between Latin America and Africa in each of the three fields identified, should be made for the policy-makers, planners and the collaborating institutions of Africa and Latin America to search for, adapt and make extensive use of processes of acceleration, adaptation and economy, i.e., by conducting appropriate searches within the continents and outside to identify wherever possible ideas, methodologies, techniques, etc., to reduce wastage and cost, to adapt so as not to waste time and other resources in rediscovering old inventions and innovations and thus achieve certain levels of development in either region at less cost in terms of time and money than would have been the case otherwise.

13. For ideas contained in the present paper, the two secretariats have drawn freely on the above-mentioned reports and, of course, on their own experience. It is hoped that after giving due consideration to the facts and views expressed in these documents, this meeting will be in a position to adopt concrete recommendations for action by the countries of both regions in order to intensify the degree of economic and technical co-operation between them.

14. In considering the recommendations put forward in this paper, especially proposals for follow-up action, the meeting should bear in mind the main obstacles which seem to militate against interregional TCDC between Africa and Latin America. One of them is the language barrier which makes it difficult -and therefore expensive- for the people of the two regions to communicate with their opposite numbers. The undertaking of co-operative activities in the training and manpower field, such as student or teacher exchange programmes, or in the field of science and technology, is particularly prone to encounter communication difficulties.

15. Another problem, which cuts across all others, is the financing of TCDC. In this connexion it is fitting to remind ourselves that TCDC, and indeed ECDC, are based on an operational concept of collective self-reliance which implies that the financial and other inputs needed for joint activities should basically be provided by the participants involved. But, this being said, it remains true that there will continue to be a need for financial inputs for promotional activities and for monitoring and reviewing the progress of joint activities already being undertaken. The idea of establishing a special fund for TCDC to cater for this kind of need which has been advocated several times in the past, should be taken seriously. For example, how else can the activities of the interregional consultative mechanism proposed elsewhere in this paper be financed, assuming that the proposal is accepted?

16. Furtunately, the financial requirements are not gigantic. In fact, it might be possible - and this is something which needs to be increasingly studied- to enter into a number of TCDC activities on a direct exchange basis using the minimum of foreign (or even local) exchange. For example, two countries with specialized training facilities in different fields could offer each other "free" training facilities; students and teachers could likewise be exchanged on a direct basis, and so on. Even the international transportation costs could greatly be reduced and its foreign exchange cost virtually eliminated by the use of national air carriers where they exist.

17. A special TCDC fund, of fairly modest size, could therefore go a long way to "lubricate" the process of direct exchange described here, without seeking to replace it.

/II. CO-OPERATION

II. CO-OPERATION IN THE AREA OF HUMAN RESOURCES

1. Introduction

18. Human resources as inputs into the development process can be defined as the skills, knowledge and attitudes needed to act as catalysts in all economic production and services activities. Human resources are responsible for the manipulation of industry, technology, agriculture, mineral resources, etc., to maximize productivity and enhance growth. Their value is categorized thus: skilled, middle-level and high-level. To produce the human resources that would fall into these three categories, varying forms and durations of education and training interventions are needed, which in turn call for varying amounts of financial and physical investments in infrastructure for education and training, staff and other instructional resources, including books, laboratories, teaching "factories", etc. Provision of these investments has constituted the biggest constraint to human resources development, and consequently utilization in the third world in general but particularly in Africa and Latin America.

19. For many countries in these two regions, availability of skills, knowledge and attitudes relevant to needs for development have indeed proved to be a scarce resource. As a result, development activities have not proceeded at the desired pace and in some cases have even been aborted.

20. Although efforts to develop the quantity and quality of manpower needed for development have been intensified in both regions over the years, the results still fall far short of expectations. Continuing reliance on developed countries of the "North" for assistance in developing manpower, especially at a high-level standard, have proved to be posing a constraint on African development both in terms of relevance of education and training and in terms of costs. Indications are that present developed countries' policies of escalating the latter will mean that African and Latin American countries' budgets will be hard pressed to permit them to continue having their nationals educated abroad.

21. Yet in the matter of human resources development, relevance of training and sharing of experiences are worthwhile objectives and useful strategies. In matters of development, Latin America has, in many respects, trodden the path that Africa is seeking to pave for itself; and in certain other areas, Africa has surmounted certain obstacles that are still constraining Latin American development. In yet other areas, common problems of human resources development and utilization still persist, which call for joint study and a common solution. The following are some of the areas identified for building bridges between Africa and Latin America:

(i) Institution-building
   - sharing of relevant experiences;

(ii) Capability development
   - skills transfer
   - staff training

22. Interregional co-operation between Africa and Latin America in the area of manpower training has been up to now an embryonic and haphazard process in spite of the efforts made by some countries from both regions to intensify such co-operation. This situation is not caused by lack of interest in developing interregional co-operation links. It is rather due to various circumstances which have been obstacles to the implementation of co-operation links, such as lack of financial resources available to carry out interregional co-operation activities

/at the

at the country level; obstacles to communication between the two regions not only as regards language barriers but also in relation to the lack of direct channels for communication.

23. As regards manpower, the studies carried out in the framework of project INT/80/908 show that the countries of Africa and Latin America not only share an effective interest in mutual co-operation in this field, but they also share some common features and problems in relation to their own human resources, such as: scarcity of qualified manpower particularly in scientific and technical matters; over-abundance of unskilled manpower; mismatch between the curricula of formal education and the urgent requirements for economic and social development; lack of adequate systems of manpower planning (particularly in the case of Africa); migration of highly qualified personnel towards the industrialized countries.

24. The intensification of interregional co-operation in the areas where it exists and the creation of new TCDC links in mutually relevant, high priority areas for individual countries or groups of countries in Africa and Latin America, would contribute directly to the solution of problems like those mentioned above and indirectly, to the general economic and social development of both regions.

2. The potential for co-operation

(a) Human resources development

(i) Institution-building

25. Increasingly, African governments are becoming conscious of the need to build and strengthen national, subregional and regional institutions. The need covers all skill areas and all areas of economic activity, viz. management education and training, engineer and technician training for industry and technology, planning, monetary and financial matters, etc. Since the problems in the two regions are similar, there is need for co-operation in the exchange of experience and the provision of mutual support. The following are areas suggested for action:

Research: Joint research projects in all fields would, with the present contiguous development situations, strengthen research capabilities of national, subregional and regional institutions. The use to which research results will be put will equally be of benefit to both regions.

Consultancy: Institution-building and strengthening call for innovations initiative and flexibility. Experiences in this area can be shared between the two regions through consultancy and advisory services in the areas of feasibility and prefeasibility studies, technical feasibility studies, engineering, architectural and building consultancies, programme design, etc. Expertise in these areas from either of the regions would be more relevant to conditions and needs than would be the case if it came from countries of the "North".

Study tours: Policy and decision-makers and staff of institutions would benefit greatly if they were given the opportunity to observe the experiences gathered in the other subregion in the area of institution-building. Through study tours, visits and staff exchange programmes, this objective would be met.

(ii) Capability development

26. Building institutions is one problem, developing the capabilities to man them efficiently is quite another. In fact, the problem in Africa is not so much the former as the latter. Administrative and management capabilities in both the public and private sectors are quite low, having an adverse effect on quality of output. Africa and Latin American countries could assist each other in developing capabilities through:

/Exchange of

Exchange of experts: Experts in all skill areas could be exchanged between the two regions to assist in skill development and transfer. They could include technical and professional personnel, university professors, lecturers, researchers and consultants.

Fellowships and student exchange: The award of study fellowships and the exchange of students would greatly supplement the efforts of individual institutions to educate and train large numbers of people in either region. The exercise would also provide for a sharing of relevant experience in teaching and learning.

(b) Human Resources Utilization

27. Developing manpower is part of the human resources problem in both Africa and Latin America; utilizing the available human resources is the other intractible part of the problem. Inability of governments to fully utilize manpower has produced phenomena such as the brain-drain, the rural exodus and the educated unemployed. Poor utilization of skilled manpower is relective of poor planning, so that, to begin to attack the problems of unemployment, brain-drain, rural exodus, etc., decision- and policy-makers must go back to examine their planning capabilities. Therefore the question of manpower utilization cannot be divorced from that of manpower planning.

28. Co-operation in manpower utilization might cover the following areas:

(i) Manpower planning: At present, capabilities in the area of manpower planning in Africa are extremely low. In Latin America, they are relatively more developed. Africa could benefit from the experiences of Latin American countries in the field of manpower planning as well as in the training of manpower planners. Africa might begin by fostering closer co-operation between the manpower planning programme at the African Institute for Economic Development and Planning (IDEP) and national and regional manpower planning institutions in Latin America like the Latin American Institute for Economic and Social Planning (ILPES). Also, bilateral co-operation arrangements might allow for individual manpower planning efforts to be strengthened through attachments, study tours and working visits.

(ii) Manpower utilization: Utilization of experts from the two regions could allow for more relevance of skill and expertise since these would be coming from common backgrounds and familiar development situations. A joint directory of experts should be prepared to facilitate identification and easy utilization of expertise from both regions. Such an effort could be strengthened by the creation in ECA and in CEPAL of a liaison office to advise and facilitate the identification and recruitment of African and Latin American experts.

3. General areas for co-operation

(a) The development of entrepreneurial capability

29. The implementation of the Lagos Plan of Action would call for the existence in substantial numbers of African industrial entrepreneurs. At present, the stock of entrepreneurs of this type is quite small in Africa and there is need for action to develop African entrepreneurial capability. Latin American countries have had some experience in this regard and could extend co-operation to sharing of these experiences with Africa through study visits for African entrepreneurs, seminars, etc. A project already exists in ECA to develop entrepreneurial capability in Africa. CEPAL should be involved to develop contacts on the Latin American end.

(b) Technician training programmes

30. Latin American technician training programmes are quite well developed. African countries are in the process of intensifying efforts to train greater numbers of technicians for their industrial development need. Exchange programmes,

/short courses

short courses and workshops for students and trainers organized with Latin American training institutions would greatly assist African efforts. In addition, regional and subregional training institutions such as the African Institute for Higher Technical Training and Research (AIHTTR) the African Regional Centre for Engineering Design and Manufacture (ARCEDEM), the African Regional Centre for Technology (ARCT), the African Regional Organization for Standardization (ARSO), etc., should be put into contact with relevant Latin American institutions to encourage experiences, joint programme development, etc.

(c) Management training

31. Management capability is quite low in Africa: an obvious constraint to development; management training programmes have been quite well developed in Latin America. Institutions set up in Africa for management training would benefit from a line of co-operation with Latin American institutions. IDEP, ESAMI, etc. might be made to develop joint programmes, exchange programmes, study visits and staff exchange.

(d) Bilateral programmes

32. At the national level, efforts to develop human resources should be encouraged and supported through co-operation arrangements. A mechanism at ECA and at CEPAL to identify needs of individual countries and to establish lines of co-operation as well as develop and monitor co-operation programmes would probably fulfill the need.

33. In addition, it is important to stress that several governments and institutions in Latin America have manifested their interest and willingness to establish initial contacts with African countries so that they can share experiences and relevant knowledge.

34. Undoubtedly this willingness is the cornerstone of any co-operation programme. In this case of the project in question, both regions have shown a spirit of co-operation which is in itself a warrant for the success of programmes that might be set up.

35. As regards manpower training for the productive sectors both in Africa and in Latin America there is a wide scope allowing to start co-operation activities and programmes almost immediately.

36. In this respect Brazil in Latin America can be pointed out as one of the countries with a significant role to play in respect of co-operation activities with African countries for reasons of cultural, geographical, institutional and technical nature. Centres in Brazil that could be interested in organizing interregional bilateral co-operation programmes are, inter alia, the following: the National Centre for Further Vocational Training (CENAFOR), the School of Financial Administration (ESAF), the Brazilian Institute of Municipal Administration (IBAM), the Training Centre for Economic Development (CENDEC), the Civil Service Training Foundation Centre (FUNCEP), the National Industrial Apprenticeship Service (SENAI), the National Commercial Apprenticeship Service (SENAC) and the National Rural Apprenticeship Service (SENAR). In Africa, regional institutions such as: ARCEDEM, AIHTTR, ARCT, ARSO, IDEP, and the Regional Institute for Population Studies (RIPS), should collaborate with the Brazilian institutions in identifying areas where co-operation could be developed and strengthened. National institutions that see merit in developing bilateral co-operation of this kind should be encouraged to establish contact with Latin American counterparts within the framework of the ECA/CEPAL project activities.

/37. Like

37. Like Brazil, the rest of the countries visited during the preparation of the manpower study, also showed a deep interest in setting-up links with African countries engaging in co-operation actions of the following kinds:

(i) Exchange of experiences and information;

(ii) Technical and institutional support for establishing training programmes in Africa (or in other Latin American countries as well);

(iii) Exchange of teaching programmes and techniques;

(iv) Comparative analysis of experiences from and results of training programmes;

(v) Study tours to acquaint trainers from one region with the experiences of the other region;

(vi) Transfers of technology applicable to techniques and methods for training unskilled manpower.

38. The above actions would imply translation and publication of texts and manuals, analysis of training and teaching systems, participation of community; on-the-job training systems and educational techniques, including non-formal as well as collective learning methods.

39. Finally as regards manpower training for public administration, Latin America has several organizations with enough experience in this field, which could be used as focal point to exchange programmes and teaching techniques and to establish joint co-operation action. The Latin American Development Administration Centre (CLAD) could perhaps be an appropriate candidate to favour co-operation in the promotional, co-ordinating and monitoring actions in this field.

40. Argentina, Brazil, Colombia and Mexico have reputable institutions that would be interested in developing activities of the following kind:

(i) Exchange of manuals, didactic material and training texts;

(ii) Exchange of experts to evaluate and identify programmes of mutual interest;

(iii) Dissemination of experiences as regards administration systems and techniques in countries of similar economic and social development levels;

(iv) Dissemination of evaluation techniques and personnel training methods.

4. Specific areas for co-operation

(a) Language Training

41. This Section spells out in greater detail areas in which co-operation between the two regions may need to be accorded high priority.

42. Apart from surveying existing language-training facilities, several actions could be undertaken under co-operation arrangements between individual countries or groups of countries from each region. These actions would circumvent language barriers efficiently and rapidly, and would attain the following objectives:

(i) Promote co-operation activities between countries speaking the same or a similar language;

(ii) Facilitate the translation of documents, manuals, studies, writings and teaching materials into languages in common use in both regions;

(iii) Set in motion activities for the development of "training personnel" such as directors, instructors, programme designers, teacher trainers and high level technical personnel.

43. A special aspect deserving consideration among these surveying activities is the assessment of existing language-training facilities for foreign students in each region. A study of this aspect should include recommendations on how countries from each region could evolve a systematic approach to language teaching to foreign students (English, French or Spanish).

/(b) Directory

(b) Directory of occupational titles

44. In order to facilitate accurate information exchange concerning training programmes, attention should be given to the fact that there is a notable dissimilarity in the occupational descriptions employed in both regions, even within the same country, and a lack of correspondence between training programmes bearing the same title. There is a need to promote the preparation of occupational glossaries and directories. Mutual co-operation in this connexion will also assist in the identification of training needs in the various countries.

(c) Survey of training institutions, centres and programmes

45. It is recommended that a project be drawn up for the purpose of identifying training institutions, centres, programmes and resources. This information should be kept up to date and made available in the official languages of the countries.

46. In this perspective each regional commission should prepare a very comprehensive directory of existing institutions of higher learning and any other training institutions that may be appropriate for the training of students from the other region. The directory should be revised periodically and should inter alia, indicate capacity, courses offered, admission requirements, medium of instruction, and the various fees.

47. The project, which could be promoted and co-ordinated by the respective economic commissions, should include the active participation of regional and national training institutions as well as that of private companies and employer and labour associations.

(d) Manpower planning

48. To ensure that manpower planning becomes a more effective and systematic input in the overall planning process, African countries should strengthen their manpower planning machineries. A number of countries in the Latin American region notably Brazil, Cuba, Chile, Jamaica, Mexico and Venezuela have worthwhile experiences in systematic manpower planning and in the provision of institutional facilities for manpower planning.

49. It is recommended that interested African countries should enter into bilateral agreements with countries in the Latin American region with a view to strengthening their manpower planning machineries. Assistance could be in the establishment of manpower planning units, formulation of manpower plans, and/or training of manpower planners. The regional commissions should co-ordinate efforts in this regard.

50. It is judged advisable to arrange technical meetings to compare training systems and experiences in manpower planning in the countries of both regions. These meetings should throw into evidence new forms of co-operation among agencies and countries.

51. The respective regional economic commissions -ECA and CEPAL- and the regional planning agencies and other development organisms should hold meetings, exchange experiences and formulate programmes and projects on a joint basis.

(e) Non-formal education

52. In recognition of the various limitations of formal education, and the great potential which non-formal education has for reaching the majority of the people, countries of the two regions should co-operate in the promotion of non-formal education as a lever for manpower development, skills acquisition and general enligthenment.

53. They should co-operate in the planning and execution of programmes such as functional literacy and rural development-oriented programmes. Co-operation could also cover the training of non-formal education personnel in both formal and non-formal institutions.

/(f) Industrial

(f) Industrial training

54. Many Latin American countries have developed various programmes in industrial training. African countries should make bilateral arrangements with such countries to develop effective industrial training programmes. The various areas where Latin American countries could be of assistance include short-term industrial attachments training of trainers, and designing mechanisms for co-operation between formal vocational/technical institutions and industry.

(g) Exchange and fellowship programmes

55. Most of the co-operation activities envisaged within the joint ECA/CEPAL project would for the moment need to be initiated and co-ordinated at the regional level. For manpower development such regional action would call for a fund to allow for the education and training activities envisaged to be carried out sucessfully. The following proposals address the need:

(i) Each region should establish a "Regional Fellowship Programme" if one does not exist, and if it exists it should be expanded adequately to cater for regional and interregional fellowship programmes;

(ii) Each Commission should co-ordinate the regional fellowship programme, acting as clearing house for fellowship awards;

(iii) The two Commissions should collate and exchange information on fellowship opportunities in each region. Thus each Commission would have information on fellowship opportunities in both regions for dissemination. Already ECA co-ordinates Africa's Expanded Training and Fellowship Programme. With the Commission's experience in co-ordinating bilateral scholarships and fellowships for Africa since 1965, and managing the expanded training and fellowship programme since 1970, it has built up the administrative capability to be able to cope with the proposed additional responsibility (although facilities will have to be expanded considerably);

(iv) To promote self-reliance, the major source of financial support for each regional fellowship programme (cash grants, scholarships and fellowships) should come from member States contributions. Supplementary funds or awards could come from bilateral and multilateral donors including UNDP;

(v) After making its own contribution to its regional fellowship programme an African country that could afford it should still offer fellowships towards the Latin American regional fellowship programme, and vice-versa. This would ensure the continuance of the type of award which Chile made in 1979 when it offered two fellowships to be used within the framework of the Expanded Scholarship and Fellowship Programme for Africa;

(vi) Some of the awards available through the African Fellowship programme should be offered to Latin American nationals to study in Africa and vice-versa;

(vii) Some of the fellowships awarded to Africa through the African fellowship programme should be tenable in Latin American training institutions and vice-versa.

III. CO-OPERATION IN THE AREA OF TRADE

1. Introduction

(a) Background

56. The idea of enhancing economic co-operation among developing countries both bilaterally and multilaterally as well as at the interregional level is not only basic but also a recurring historical theme. There is, therefore, considerable evidence about the need to enhance the principle of collective self-reliance through increased trade exchanges. This realization stems from several factors, not least of which is the inherent potential of developing countries both as producers and consumers of most of the products which continue to be imported from traditional suppliers. Furthermore, it is generally agreed that improved trade opportunities are more advantageous in the process of economic development whereas the overwhelming reliance on aid is not.

57. The summary which follows stresses the need for promoting and expanding interregional trade between developing countries of the African and the Latin American regions. It derives from studies undertaken concurrently and respectively under the auspices of the Economic Commission for Africa and the Economic Commission for Latin America.

(b) Objectives of co-operation

58. A series of objectives are proposed against the background of the evidence brought out in the studies referred to above. These proposed objectives would appear to be valid for the future development of trade between the two regions. Undoubtedly, such trade can and should continue to grow rapidly in the near future so as to attain levels that will be truly significant for all countries involved. This means, among other things, that those countries that have not participated in such trade to-date must begin to do so. There are also many possibilities for diversifying trade by including commodities that up to now have been obtained from other sources.

59. Similarly, there is the objective of providing opportunities for trade creation deriving from the inherent potential of the markets in both regions. This objective would make possible the achievement of more balance in trade between these countries, both in quantitative and qualitative terms, also in the longer range.

60. Last but not least, co-operation should extend to trade-related areas, such as financial and technological co-operation, to enhance industrial promotion and capabilities, personnel training of trade cadres, joint exploitation of natural resources, etc., all with a view to increasing and diversifying trade among as many countries as possible.

2. Current situation with regard to trade and co-operation

61. Trade between the two regions is relatively recent and has many of the characteristics to be expected in an incipient exchange between developing countries which are, moreover, quite different from each other.

(i) The volume of trade is still relatively small by comparison with the total external trade of the countries involved and is carried out in a very erratic manner;

(ii) Trade is concentrated between a few countries, as most of the countries do not trade with each other;

(iii) More than 75% of African exports consist of oil and less than 10% of manufactures. On the other hand, Latin American exports to Africa consist of over 35% of manufactures. A few Latin American countries have furthermore been able to make significant inroads in the African market for engineering services.

/(iv) Although

(iv) Although trade has gone through a period of relatively rapid growth, the external trade of both groups of countries is still dominated by traditional commercial links with the developed countries.

(v) The pattern of interregional trade so far has been markedly influenced by the export promotion efforts of a few countries on one hand and by the oil trade on the other. However, there have not been major efforts to favour the imports from the other region.

62. Recently there has also been a new dynamism emerging in the field of interregional co-operation manifest through increased contacts at several levels in trade related fields. For instance, the creation of producer cartels, joint signature to certain international commodity agreements, such as those of coffee or bauxite producers; participation in each other's trade fairs; mounting of goodwill missions; joint activities under the auspices of regional economic commissions (CEPAL and ECA) and other United Nations agencies such as UNDP and UNCTAD. The impact of these initiatives so far has been only very modest.

3. Critical areas in which trade might be developed and short and medium-term means of action

(a) The problem of imbalance

63. As has been mentioned before, the greatest problem that might affect trade at present is the tendency towards imbalance both in levels and in structure. This imbalance is evident at first glance and, moreover, is likely to persist for some time. Nevertheless, the existence of this tendency towards imbalance should not hinder the future development of trade.

64. Over the short and the medium-term, African oil exports to Latin America can and should, to a large extent, allow for trade to grow without becoming too imbalanced. However, this component of interregional trade will most probably never lead to a really diversified pattern of trade between the two regions since it will benefit only a limited number of oil exporting countries. Similarly, Latin American countries which have made or are making a substantial export inroad into the markets of African countries should explore the possibilities of increasing their imports of African products other than primary products.

65. Over the long term, however, it will be necessary to develop means and patterns that will guarantee a better trade balance, not only as regards quantity but also as regards structure. Some of them should be based on the role that might be played by income obtained by the major exporting countries of both regions in creating this new export capacity. Several of these possibilities will be discussed below.

66. One of the considerations that must be taken into account is the possible role of imports from Latin America as an alternative source of supply for African countries. However, such imports which replace supplies that hitherto had been obtained from developed countries should not aggravate to the overall trade deficit of the African countries. In any case, there is still the problem of financing which must be resolved by countries that have an interest in carrying out a commercial transaction.

(b) The role of state trading organizations

67. State trading organizations (STOs) should be increasingly involved in both export and import development activities of their respective countries. In view of their strategic importance in several countries, they could be in an ideal position not only to negotiate favourable purchase agreements but also to try and

/sell products

sell products of their respective countries. There should also be considered as possible national focal points for interregional co-operation actions in the field of trade.

(c) Trade financing: present situation and some possible options for co-operation

68. Financing is another major problem area where decisive and imaginative solutions will be required if the countries want their trade relations to continue to grow vigorously. Most African and Latin American countries face growing balance-of-payments deficits and this affects their import capacity. A significant part of their imports is from developed countries which offer generous credit terms. The African countries, more than the Latin American countries, also have access to credit from regional and international agencies on preferential terms, as well as development aid from some developed countries.

69. The situation described above offers some possibilities for contributing to the financing of trade between Africa and Latin America. Preferably this trade should count with the same financing facilities that are available in the major exporting centres. The larger countries of Latin America may be willing to offer such terms, as are the oil-exporting countries of both regions. The other countries should seek ways to mobilize any preferential financing to which they may have access so as to increase their export capacity as well as the financing of their non-traditional exports. Consideration might be given inter alia to the establishment of regional and subregional export banks. (Latin America already has a bank of this type, the Latin American Bank for Exports (BLADEX), and several other mechanisms having the same aim, but the volume and terms of credit offered are still unsatisfactory.) The surplus countries in both regions might consider investing in these banks or in funds pursuing the same ends.

70. Aside from efforts at the national level, consideration might be given to the creation of a regional fund or even a bi-regional fund, which would be fed mainly by the surplus countries and by countries carrying greater weight in interregional trade. This fund could support all activities aimed at promoting trade between the two regions, from the post-shipment financing of trade between participating countries to the implementation of ambitious joint productive projects, such as the exploitation of natural resources and the establishment of export industries.

71. With regard to trade financing, particularly at the pre- and post-shipment stages of external trade operations, private financial institutions like commercial banks and development corporations have a very significant role to play. The operational aspects of interregional payments could be easily handled at all levels if these institutions could be encouraged to develop or strengthen their own interregional links. To that end, regional and/or subregional networks which have been set up by private financial institutions should be brought into the process of interregional co-operation in trade financing.

72. Finally, in order to develop in full the trade opportunities that do exist in both regions, consideration should be given to future co-operation between regional integration schemes and payment systems. At the present time, the necessary conditions do not seem to exist for reaching global agreements between integration schemes belonging to the two continents, as practically all these schemes are faced with serious internal problems. Nevertheless, a study might be carried out on the possibilities for negotiating partial agreements, for example, with reference to payment systems, or on the basis of a small number of commodities that might be given preferential tariff treatment. The difficulties involved in negotiations between countries and systems that are so different from each other

/should not

should not be underestimated so that the proposed studies would have to be aimed at rather modest goals for the time being. The African and Latin American payment systems might grant each other credit and agree on payment matters that might arise in the course of trading between the participating countries. At the multilateral level, the schemes could grant each other an interregional tariff preference, which in principle might consist of a proportional discount on tariffs for practically all categories of commodities that might be traded between the two systems.

(d) Transport and communications

73. The state of transport and communications between Africa and Latin America still leaves much to be desired. What transport and communications exists as a service has been provided to meet effective demand rather than to elicit or encourage demand. However, transport cannot be the only stumbling block to expansion of interregional trade between the two regions.

74. Indeed by being rather scarce, indirect, cumbersome and expensive it contributes to diminishing the competitiveness of most trade products of the countries of the two regions. In view of the low volume of trade existing at present, it would be necessary to seek means of transport and communications that would efficiently solve these problems without creating an excess capacity that would not be justified. Perhaps countries should consider entering into agreements on the establishment and operation of joint multinational transport and communications services in order to obtain the minimum scales required.

75. In this connexion, there would be the need to link studies in this field to target markets and products with export potential in order to determine authoritatively the advisability and feasibility of creating such joint services. Similarly, it should be established which would be the most convenient way of financing and organizing the services.

(e) Industrial co-operation

76. Industrial development policies at both the national and regional levels must not be based on the misleading concept that similarity of the economic development of the two regions confirms the lack of future prospects between their economies. On the contrary, the existing range of diversity provides considerable scope for initiating several complementary activities to the mutual benefit of the countries of the two regions.

77. Some of the measures which should be taken to overcome these obstacles within the context of industrial co-operation ought to include initiating action on complementary agreements, long term supply agreements and joint ventures. Consideration ought also to be given to the need for the establishment of regional and/or interregional institutions where these do not yet exist for the purpose of providing guidance to the countries of the region in these fields.

78. International bodies and agencies, among them the regional economic commissions could help encourage and organize:

(i) investors' meeting at interregional level;

(ii) investment promotion programme to attract and mobilize investors into joint industrial ventures;

(iii) bilateral and multilateral consultations between interested countries of the two regions on trade related matters;

(iv) bilateral and/or multilateral consultations between interested state trading organizations;

(v) industrial trade fairs.

/(f) Trade

(f) Trade information and promotion

79. There are several other measures and actions apart from the few listed above which the countries can and should undertake to intensify their trade relations. In the first place, there is a great lack of knowledge regarding the situation in each country with respect to the supply of goods for export and their competitiveness. Considerable efforts will have to be made in the area of trade information and promotion.

80. It is noteworthy in this regard, that several mechanisms and actions have already been tried, especially by the Latin American countries. The organization of commercial tours, participation in trade fairs, the establishment of trade bureaux and commercial information services, and the implementation of export promotion schemes with a whole range of specific mechanisms are a few examples of the many ways in which attempts have been made to facilitate trade expansion or make it viable. The Latin American countries could therefore provide technical assistance in many of these areas to African countries as specific TCDC actions.

81. In this connexion also, international organizations and specialized agencies should gear some of their activities, whenever possible to accommodating elements of TCDC. The two regional economic commissions (ECA and CEPAL) could, in collaboration with other agencies, e.g., UNCTAD-ITC, be the focal points for the exchange of experiences and information which may be of use for the different countries having a relatively ample experience in the design and application of trade information and export promotion policies. On the other hand consideration could be given to the possibility of organizing market research courses on the basis of studies conducted in the field. Such studies would have to be carried out in Africa by the Latin American participants and vice-versa in Latin America by the African participants. In each case, the countries visited would by and large constitute the target markets.

(g) Some identified trade opportunities

82. It has been possible, on the basis of the information on the existing external trade of Latin America and Africa and confirmed further by the analysis in the background studies to identify certain lines of products which Latin America appears at present to be in a favourable position to export to Africa. By order of importance, they include refined petroleum products, sugar, motor vehicles, wheat, textile fibres, non-electrical machinery and power generators, animal feed, clothing and electric machinery. However, the same pattern does not apply to exports of the African region within the limits of a short-term analysis. The possibilities for African exports to Latin America appear to be much more restricted, basically because the most important items in African exports are generally competitive with similar products exported by Latin America. There may however exist more ample trade opportunities between African and Latin American countries which have shortages in goods such as petroleum, cocoa, coffee, cotton, iron ore, fruits and vegetables, clothing, non-ferrous minerals, textile fibres, oil seeds and vegetable oils, timber, fertilizers, rubber, aluminium, essential oils, lime and cement. On the other hand it is worthwhile submitting to the consideration of the Latin American countries the possibility of increasing their imports from Africa of processed and semi-processed agricultural goods. Similarly for African non-agricultural goods provision could be made for countries to buy back some of the products produced under conditions of joint ventures of countries of the two regions.

/4. Opportunities

4. Opportunities that could materialize over the longer term

(a) Joint undertakings

83. Opportunities that could materialize over the longer term are much wider, particularly for African exports of manufactures. Prospects are probably best for joint undertakings between countries of both regions when it comes to exploiting natural resources and producing manufactures. In these cases, due attention would have to be given to the external projection of such enterprises, for example, by ensuring that purchase by each partner are obtained from such joint enterprises. Africa has a few natural resources that are of great interest to Latin America whose development and exploitation requires foreign technology and capital. Certain Latin American countries are able to meet a significant part of these requirements in exchange for a guaranteed supply of the resources developed. Latin American enterprises have already shown real interest in participating in joint undertakings which aim at producing manufactures for the African markets. Some of these joint undertakings could form worthwhile bases for exporting to third parties as well as to extraregional markets, especially within the Latin American markets.

84. It is also conceivable that some African entrepreneurs and investors would take an interest in participating with Latin American enterprises which, among others, could process African raw materials for the regional market.

85. It should also be possible within the wider context of co-operation between enterprises to study the possibility of reaching agreements at the State or public sphere level both commercially and in connexion with some of the joint undertakings described above. After all and as earlier pointed out the role of State enterprises in external trade is very important in many Latin American and African countries because a great part of the exports and imports of the countries are concentrated in their hands. Consequently, these enterprises should be able to negotiate "trade packages" with each other similar to the practice which exists in trade with socialist countries. These agreements could lead to the activation of trade between the countries concerned. They could also contribute to the possibility of achieving a certain balance that is inherent in such agreements.

(b) Manpower development in trade promotion

86. A prerequisite for developing exports and transports within the context of economic and technical co-operation among developing countries is the availability of well-trained and versatile management cadres. Latin American countries have a relatively strong industrial background and have acquired appreciable experience and status from which developing Africa could profit in the development of new export commodities and marketing opportunities. Consequently, such technical collaboration which falls within the scope of the principle of collective self-reliance should be fostered as it is bound to be beneficial to both regions. Short courses, study and exchange visits, seminars, etc., would fulfil this need.

IV. CO-OPERATION IN THE AREA OF SCIENCE AND TECHNOLOGY

1. Introduction

87. This section of the document is concerned with the identification of some possible co-operative actions that can take place between the countries, institutions, etc. in Latin America and Africa in their efforts to apply science and technology effectively to national and regional socio-economic development.

88. It must be read not only within the context of the principles governing the ECA/CEPAL project but also of the pronouncements in the Lagos Plan of Action 2/ and the Latin American Regional Programme of Action 3/ regarding the necessity for countries of "the South" to adopt concrete measures in fields of mutual interest towards the goal of achieving "South-South" collective self-reliance and self-sustaining economic and industrial development.

89. Since the core of technological independence and hence economic independence is the capability to produce and propagate technologies, it will be in order to expect any TCDC co-operative effort between Latin America and Africa to assist in finding out for example how this core capability is to be built-up in both regions and how it is related firstly to indigenous demand and secondly to imported technology, what will be the role of governments, parastatals, relevant national and regional institutions and economic groupings at the subregional and regional levels as both demanders, promoters and suppliers of technology in the priority sectors which have been identified in the regional plans of action of both regions and which were incorporated in the terms of reference of the consultants recruited to conduct the studies in the field of science and technology.

90. Emphasis has been placed on questions of demand in the preceding paragraphs because it is from the determination of the pattern and distribution of the demand for goods and services that the profile for the development of technological capability should ensue.

91. In so far as active demand is concerned demanders were and still are more commonly to be found mainly among foreign enterprises operating both within and outside the local setting. This situation exists because of their influence on general policy and resource allocation at the national level. However, it may be worthwhile to point out that recent governmental decisions in the two regions have indicated concentration areas to which due attention should be given in the development of local technological capabilities necessary for the stimulation of industrial production.

92. Another important factor to be given due consideration in co-operative efforts to be developed in the field of science and technology, concerns the immense potential available in the rural areas of both regions. This potential lies largely unexploited because of the outward orientation of many of the socio-economic systems, the narrow natural resource base on which these systems are built and the absence (especially in the case of Africa), of an adequate range and number of engineering industries required for the development of local technological capabilities.

2/ Lagos Plan of Action, adopted at the second extraordinary session of the Assembly of Heads of States and Government, held in Lagos, Nigeria, 28-29 April 1980.

3/ CEPAL resolution 422 (XIX).

/93. Yet

93. Yet it is in these areas that the mass of the people live; it is in them that the bulk of natural resources are to be found. It is therefore pertinent to ask how the adaptive technology potential in the rural and informal urban sector could be mobilized so as to release endogenous creative and inventive talents; what educational systems should be developed for the scientific and technological transformation process required for the exploitation of local natural resources to produce goods and services for the mass of the populations.

94. In the examination of the proposals made below for scientific and technologic co-operation and the development of projects to foster such co-operation, the parties concerned are invited to give due consideration to the above-cited concerns.

95. Apart from the general reasons that justify the need for South-South co-operation, the science and technology field presents in that respect some distinctive features that make even more evident the necessity for such co-operatio.

96. These special factors mainly arise from the well known fact that most of R and D conducted in the developed countries tends to be related to their local environmental conditions and also, on the socio-economic side, to a situation in which capital availability presents no major constraints. Obviously, the situation in these aspects in the countries of both regions involved is different from that just described for developed countries. The similarity of conditions in Latin America and Africa and the frequent inadequacy of technologies originated in the North are, thus, factors that enhance and make more evident the need for this South-South co-operation.

2. The potential for scientific and technological co-operation

97. From the studies, it would appear that the countries of Africa and Latin America do not have much experience in the fostering of co-operative efforts in the field of science and technology. The principal activities undertaken so far appear to have been carried out by Brazil and Argentina with a very limited number of African countries.

98. However, there are several potential areas in which TCDC/ECDC can take place between Latin America and Africa in the field of science and technology for development, some of which are identified in this report. The suggested modalities of co-operation and possible countries and institutions provided in Section C are by no means exhaustive; they are, however, illustrative of the range and nature of the available reservoir of possibilities.

99. Governmental experts should therefore feel free to include other types of co-operation, countries, and institutions on the suggested list.

100. Under each area of possible co-operation in Section C, the types of co-operation suggested cover areas such as trade, advisory assistance, systems for information exchange, training programmes and the scientific and technological plans, policies and instruments required for the development of technological capabilities. Although there may exist several other areas in which TCDC and ECDC actions can take place for the development of science and technology, the above-mentioned areas appear to be the most critical as efforts developed and maintained in the short to medium term could eventually create the core capability required for establishing a respectable level of technological independence. The actions to be developed in these areas can take place at the bilateral and multilateral levels with the governments and institutions suggested participating in best manner they see fit. Of course, this in no way precludes participation from other countries and institutions not listed here but that are willing to do so. The list of institutions and countries is therefore far from being exhaustive.

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101. In order for meaningful and concrete action to materialize in the identified areas, it was deemed advisable to establish some order of priority for their initiation and/or continuation. An attempt has therefore been made to specify tentatively the period of time, namely short, medium and long term, within which efforts, can be pooled by institutions and governments in Latin America and Africa to initiate new ties and/or strengthen existing ones. Activities which are on-going and which have a direct impact on economic and social development goals for example those in agriculture, energy and some areas of industry, have been classified in the short-term category because initial and continuing efforts at technical and economic co-operation could be concentrated in these areas.

102. A similar reasoning has been used to provisionally categorize in temporal terms the other areas in which co-operation can take place. In addition to the identified areas in Section C it would be useful for the governments and institutions of both regions to explore some other potential areas for co-operation which were identified during the field research for the project and which could be of some importance, probably in the near future, for scientific and technological co-operation between the two regions, namely:

- improvement of livestock, and artificial pastures,
- leather and leather products industry,
- integrated development of arid and semi-arid zones,
- basic petrochemical industry,
- communications and telecommunications,
- road and port infrastructure,
- development of numeral resources (copper, iron, coal, etc.),
- development of hydroelectric resources.

103. For meaningful actions to materialize there are both in the above-cited and the aforementioned area, probably certain preconditions which may be required in order to facilitate them. The current state of development in many African countries, as far as lack of suitable linkages between economic sectors is concerned, calls for the creation or strengthening of national machinery of a distinct and separate character for economic co-operation to co-ordinate and monitor co-operation arrangements. This situation could also apply to some countries in Latin America. Such machinery would have to handle matters concerned with regional and interregional co-operation with appropriate linkages to all relevant scientific and technological institutions at the regional level, such as the ARCT in Africa and SELA/RITLA in Latin America,4/ and at the national level.

104. For Africa, and to a certain extent for Latin America, it is essential that adequate national machinery should be established or strengthened as a top priority to deal with matters pertaining to the development of scientific and technological capabilities. Such machinery should then operate in close collaboration with the national machinery for economic co-operation and pay due attention inter alia to questions having to do with co-operation in the identified areas.

105. It is essential also to point out that relevant regional institutions and economic groupings in both regions, should be encouraged to play a significant role in TCDC/ECDC arrangements so as to ensure whenever possible that the greatest number of countries would enjoy the benefits of such co-operation on a much larger scale than would have been the case ordinarily.

4/ Latin American Economic System/Latin American Technological Information Network.

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106. In the agricultural area, a significant role in scientific and technological co-operation could be played at the bilateral and multilateral levels by international research institutes such as, the International Maize and Wheat Improvement Centre (CIMMYT) in Mexico; the International Centre for Tropical Agriculture (CIAT) in Colombia; the International Potato Centre (CIP) in Peru; the International Institute for Tropical Agriculture (IITA) in Nigeria; the West Africa Rice Development Association (WARDA) in Liberia; the International Laboratory for Research in Animal Diseases (ILRAD) and the International Centre for Insect Physiology and Ecology (ICIPE) in Kenya and the International Livestock Centre for Africa (ILCA) in Ethiopia.

107. For promoting and carrying out possible co-operation activities on a continuous basis the conduct of a periodic review and inventory of national scientific and technological capabilities in order to secure up-to-date knowledge on the extent and degree of development of such capabilities, appears to be necessary.

108. In view of the difficulties which might result from the lack of adequate financing of the anticipated co-operation projects and the subsequent failure of concrete results to emerge from them, every effort should be made as early as possible to explore the possibilities of gaining access to the funds of international and regional funding agencies such as the United Nations Financing System for Science and Technology for Development, the OPEC Development Fund, the African Development Bank, the Arab Bank for Economic Development of Africa, the European Economic Community, the Interamerican Development Bank, the Central American Economic Integration Bank, the Caribbean Development Bank, etc.

109. Finally, it is worth mentioning that the existing bilateral agreements between the countries of both regions for enhancing scientific and technological co-operation, could play a promising role in channelling co-operative initiatives which might emerge from this project.

3. Specific proposals for co-operation: suggested areas, types and mechanisms

110. The following table synthesizes what has been suggested as proposals for co-operation in science and technology:

Areas of possible co-operation	Types of suggested co-operation	Suggested possible countries	Suggested possible institutions */	Term
1. Composite flour technology (using base products soya, maize, sorghum, cassava, etc.)	(a) Trade -access to technologies for maximum efficiency in all aspects of processing and production	Nigeria, Argentina, Senegal, Brazil, Mexico, Colombia, Peru, Sudan, Zambia, Ivory Coast, Trinidad and Tobago	ITA (Senegal)	Short
	(b) Trade -new technologies for baking and milling based on local raw materials		NCSR (Zambia)	
	(c) Advisory assistance in all stages of production preservation, processing, marketing, quality control, etc.		FRC (Sudan)	
	(d) Exchange information system (technology, market establishment, activities necessary for improving employment generation, peasant income and welfare, rapid rise in productivity, etc., demand for new technologies)		INTI (Argentina) INDA (Peru) ITAL and EMBRAPA/ CTAA (Brazil) IIT (Colombia) LANFI (Mexico) TDAU (Zambia) ARCT (Dakar) ARCEDEM (Ibadan) PRODA (Nigeria)	
	(c) Training in development of technology for production, preservation and processing and techniques for marketing products, (e.g. packing, packaging, etc., distribution chain)			

*/ See Annex for explanation of acronyms.

Areas of possible co-operation	Types of suggested co-operation	Suggested possible countries	Suggested possible institutions	Term
	(f) Exchange programmes, e.g., research fellowships, secondment of experts, joint execution of research projects, information seminars, study tours, etc.			
	(g) S and T policy and instruments for effective implementation of technology acquisition (transfer or development) and for product development		Appropriate sub-regional economic groupings in Africa and Latin America (e.g. Mano River Union, ECOWAS, CEAO, UDEAC) CARDI (Trinidad and Tobago) Cartagena Agreement (Lima) CARICOM (Port of Spain) MCCA/ICAITI (Guatemala)	
2. Preservation, processing, and canning of fruits, vegetables and meat (palm, pineapples, molasses, apples, tomatoes, bananas, mangoes, lemons, etc.)	(a) Same as 1 (a) but with production replaced by preservation and canning (b) Advisory assistance on process selection, development of product formulas, design of plant layout and plant operation, quality control, packaging, storage and distribution (c) Exchange information system (technologies, distribution systems, range of manpower, techniques for generating the demand for such technologies)	Senegal, Argentina, Brazil, Colombia, Peru, Mozambique, Zambia, Nigeria, Mexico, Ivory Coast, Trinidad and Tobago	INTI (meat, tomatoes, apples) (Argentina) ITAL-EMBRAPA/CTAA (fruits, vegetables, meat) (Brazil) SENAI (Brazil) IIT (fruit, vegetables) (Colombia) INDA (fruit: mangoes, palm, lemon) (vegetables: onion) (Peru) ARCT (Dakar) ARCEDEM (Ibadan) ZIMCO (crops, vegetables) (Zambia)	Short

Areas of possible co-operation	Types of suggested co-operation	Suggested possible countries	Suggested possible institutions	Term
	(d) Training required in development of technologies for preservation, processing, canning, etc.		NCSR (fruit: masuku, pineapple) (vegetables: tomatoes, squash), (plant: molasses) (Zambia)	Short
	(e) Other co-operation programmes: research fellowships, secondment of experts, joint execution of research projects, study tours, information seminars, etc.		ITA (Senegal) PRODA (Nigeria) CIATECH (Mexico) CARDI (Trinidad and Tobago	
	(f) S and T policy and instruments for effective implementation of technology acquisition (transfer and development) and for product development		TDAU (Zambia) Centro "Las Gaviotas" (Colombia) CEESTEM (Mexico) ENDA (Senegal) NIFOR (Nigeria)	
3. Development of inland fisheries and fish-nurseries (fish processing, storage and packaging)	(a) Trade in fishery products, and in technologies for fishing, fish processing, storage and packaging	Argentina, Brazil, Colombia, Mexico, Ivory Coast, Peru, Nigeria, Senegal, Zambia, Cape Verde	INTI/CITEP (Argentina) ITAL (Brazil) IIT (Colombia) CIATECH (Mexico) ITP (Peru	Short
	(b) Advisory assistance in technologies for fishing in processing, storage and packaging technologies			
	(c) Exchange information system (technologies, processing, storage, packaging and distribution technologies, the use of the informal sector, etc., activities necessary for improving employment generation, peasant income and welfare, rapid rise in productivity, etc.)			

Areas of possible co-operation	Types of suggested co-operation	Suggested possible countries	Suggested possible institutions	Term
	(d) Training programmes in development of technologies for fishing, processing, storage, and packaging, joint research and development programmes, research fellowships, study tours, etc. (e) S and T policy and instruments for effective implementation of technology acquisition (transfer and development) and for product development			
4. Integrated rural development programmes and food development strategies	Exchange information system (programmes, strategies, etc.)	Colombia, Brazil, Mexico, Nigeria, Senegal, Zambia, Cape Verde Board of the Cartagena Agreement	EMBRAPA, PNTAA (Brazil) PAN/DRI (Colombia) SAM (Mexico) For development of food technology in its strategic capacity in all three areas identified in the food sector, information on comparable programmes in Africa is not available from the current report but it may be worthwhile to mention the AFPLAN	Short
5. Anatomy studies and identification of the various species of forest resources, comprising inventories and technical evaluations of their physical and mechanical properties	(a) Trade in forest products and in technologies for extraction, processing, production	Colombia, Argentina, Brazil, Mexico, Peru, Nigeria, Senegal	INDERENA (Colombia) INTI, IFONA (Argentina) INIF (Mexico) IPT (Brazil) DGFF (Peru)	Long

Areas of possible co-operation	Types of suggested co-operation	Suggested possible countries	Suggested possible institutions	Term
	(b) Advisory assistance in technologies for extraction, processing and production and in developing, know-how for conduct of studies, techniques for the commercialization of R and D results, etc.		Cartagena Agreement (LADIMA) TPDU (Nigeria) SONEPI (Senegal)	
6. Development of various technologies for the preservation of timber	(c) Exchange information system (technologies, marketing techniques, institutional development, etc.)	Ivory Coast		Medium
7. Studies for the utilization of wood for construction and housing	(d) Training programmes in identified areas of need, study tours, joint R and D programmes, research fellowships, etc.			Short
8. Pulp and paper technology	(e) S and T policy, plans and instruments, for technology acquisition (transfer and development) and for product development			Medium
9. Manufacture of cement on the basis of rice husks; additives for manufacture of concrete (wood waste, rice husks, bagasse, sulphur, by-products of coconut); production of bricks, lime, clay, tiles, chalk, sanitary wares; construction of low cost roads and houses from local materials	(a) Trade in technologies for production, processing, etc. (b) Advisory assistance in technologies required for production, processing, techniques for the commercialization of R and D results, etc. (c) Exchange information system (technologies, marketing techniques, tropical road and house building techniques, etc.)	Argentina, Brazil, Colombia, Mexico, Senegal, Zambia, Nigeria	TDAU, NCSR (Zambia) INTI (Argentina) CENAC (Colombia) CIM (Mexico) PRODA (Nigeria) IPT (Brazil)	Short

Areas of possible co-operation	Types of suggested co-operation	Suggested possible countries	Suggested possible institutions	Term
	(d) Training programmes in identified areas of need; study tours; joint R and D programmes; research fellowships, etc. (e) S and T policy, plans and instruments for technology acquisition (transfer and development) and for product development			
10. Alcohol from sugarcane, manioc (cassava) and other agricultural wastes: fuel oil substitutes from agricultural crops; firewood and charcoal programmes (utilization of babassu native perennial palm in Brazil) Solar and wind energy.	(a) Trade in technologies for production and packaging and product development (b) Advisory assistance on process selection, development of product formulas, design of plant layout and plant operation, etc. (c) Information exchange systems (technologies, techniques for generating demand for such technologies in the rural areas, the use of the adaption potential in the informal sector, etc.) (d) Training programmes in areas of identified need, joint research and development programmes, study tours, research fellowships, etc. (e) S and T policies and plans and instruments for effective technology acquisition (transfer and development) and product development as well as the promotional, organizational and distribution aspects	Brazil, Senegal, Zambia, Colombia, Mexico, Peru, Nigeria	INT/FTI (Brazil) IPT (Brazil) IIE (Mexico) ITINTEC (Peru) CESP (Brazil) TDAU (Zambia) Centro "Las Gaviotas" (Colombia) OLADE	Short to medium

Areas of possible co-operation	Types of suggested co-operation	Suggested possible countries	Suggested possible institutions	Term
11. Co-operation in institutional sphere (infrastructure for S and T policies and plans, etc., technology, development and regulation of transfer of technology	(a) Advisory assistance in the establishment of national centres and interregional mechanisms for the development and transfer of technology and the financing of S and T (b) Co-operation to improve bargaining power with suppliers of technology (c) Information exchange system (early warning system for S and T development in technological advances in industrialized countries and how these will impact on development strategies of both regions, etc.) (d) Co-operative studies to define the role of the rural sector, to determine mechanisms for the organization of demand for technology especially in the rural areas, etc. (e) Training programmes on S and T policy research, negotiating techniques, analysis of contracts, etc., joint research programmes, use of patents and trade marks and their assessment, etc., technical working groups, study tours, etc.	All countries visited as well as others in both regions	ARCT, ARCEDEM, ARSO, ESARIPO, OAPI, AIHTTR (Africa) TPDU (Nigeria) Ministry of Science and Technology (Nigeria) Andean Pact institutions National machinery for Science and Technology Development in Argentina, Brazil, Colombia, Mexico, Peru, Zambia, Senegal, etc. CONACYT, INTI (Argentina) CNPq/INPI/FINEP (Brazil) COLCIENCIAS (Colombia) CONACYT, ITINTEC (Peru) NCSR, TDAU (Zambia)	Medium to long

V. SUGGESTIONS FOR FUTURE FOLLOW-UP ACTION

(a) Establishment of a permanent interregional consultative mechanism on TCDC/ECDC

111. It is proposed that a permanent consultative mechanism be instituted which would make it possible for consultations on the promotion of TCDC between Africa and Latin American countries to continue on a regular basis. In principle, membership of the consultative group should consist of all States members of ECA and CEPAL; however for operational purposes it may be desirable for these countries to be represented by a small committee of, say, four countries -two from each region- which would meet periodically to review progress and problems of interregional TCDC and ECDC, and to receive and propagate new proposals. The consultative committee would report regularly to the member States, and would be serviced jointly by the Secretariats of ECA and CEPAL through their TCDC Focal Points, acting in close consultation with the UNDP Special Unit for TCDC and the Regional Commissions Liaison Office in New York.

(b) Follow-up to the current project

112. It is suggested that African and Latin American countries -and/or relevant institutions within their regions- should follow up on any leads, proposals or recommendations emanating from the current meeting. Individually and collectively they should take all necessary measures to step up such co-operation as already exists, while seeking to concretize the advantages of any new opportunities for economic and technical co-operation that the meeting may have revealed. In this perspective the identification and implementation of concrete projects stemming from the studies considered at the present meeting would take precedence over the mounting of further studies of a general nature, without prejudice to the fact that there may be need for additional in-depth sectoral studies for purposes of strengthening the information base required for the launching of co-operative ventures.

(c) Future meetings of African and Latin American governmental experts

113. It is proposed that future meetings of African and Latin American governmental experts be convened periodically by the proposed permanent consultative committee on TCDC as and when necessary, provided that the interval between one meeting and the next should not exceed three years. All States members of ECA and CEPAL should be invited to participate in such meetings, whose main purpose will be to review the progress made towards the implementation of interregional TCDC/ECDC projects and consider proposals for the further strengthening of horizontal co-operation.

(d) Dissemination of information on interregional TCDC/ECDC activities

114. Information on the decisions reached in this meeting, and on present and future activities undertaken jointly by African and Latin American countries in furtherance of TCDC/ECDC, should be disseminated as widely as possible among member countries and institutions of the two regions. Regional Commissions if so requested, could play a significant role in this respect.

/(e) Resource

(e) Resource needs

115. It goes without saying that the proposals in (a) to (d) above cannot be fulfilled without the necessary financial and human resources. The governments as well as the national, subregional or regional institutions of both regions can only undertake interregional co-operative activities to the extent that they are prepared to devote resources to them. To supplement their own efforts, the governments and institutions can hopefully count on the assistance of willing bilateral and multilateral donors, but in the last analysis the success of TCDC Co-operative ventures will depend squarely on their own efforts and resources.

116. If, in particular, the proposal to establish a permanent consultative committee which will, inter alia, convene periodic meetings on interregional TCDC projects and continuously monitor their progress is accepted, financial support for it is absolutely necessary.

/Annex

Annex

MEANING OF ACRONYMS RELATING TO SCIENCE AND TECHNOLOGY

AFPLAN	Regional Food Plan for Africa
AIHTTR	African Institute for Higher Technical Training and Research
ALADI	Latin American Integration Association
ARCEDEM	African Regional Centre for Engineering Design and Manufacturing
ARCT	African Regional Centre for Technology
ARSO	African Regional Organization for Standardization
CARDI	Caribbean Research and Development Institute
CARICOM	Caribbean Community
CEAO	Economic Community of West Africa
CEESTEM	Centre for Economic and Social Studies of the Third World
CENAC	National Construction Centre
CESP	Energy Commission of the State of São Paulo
CIATECH	Centre for Technological Research and Assistance of the State of Chihuahua
CIM	Centre for Research on Materials
CNPq-	National Council for Scientific and Technological Development
COLCIENCIAS	Colombian Fund for Scientific Research and Special Projects
CONACYT	National Council for Science and Technology
DGFF	General Directorate of Forestry and Fauna
DRI	Integrated Rural Development Programme
ECOWAS	Economic Community of Western African States
EMBRAPA/CTAA	Brazilian Agricultural Research Enterprise-Centre for Agricultural and Food Technology
ENDA	Technology Relay for "Training for the Environment Programme"

ESARIPO	Industrial Property Office of English-speaking Africa
FINEP	Financing of Studies and Projects
FRC	Food Research Centre
IFONA	National Forestry Institute
IIE	Electrical Research Institute
IIT	Technological Research Institute
INDA	Institute of Agroindustrial Development
INDERENA	Institute for the Development of Renewable Natural Resources
NEIDA	Network of Educational Innovation for Development for Africa
NIFOR	Nigerian Institute for Oil Palm Research
OAPI	Industrial Property Office of French-speaking Africa
OLADE	Latin American Energy Organization
PAN	National Food and Nutrition Plan
PNTAA	National Programme of Agro-Industrial Research on Food
PRODA	Projects Development Agency
SAM	Mexican Food System
SENAI	National Service for Industrial Planning
SONEPI	National Society for Study and Industrial Promotion
TDAU	Technology Development and Advisory Unit
TPDU	Technology Planning and Development Unit
UDEAC	Customs and Economic Union of Central Africa
ZIMCO	Zambian Industrial and Mining Corporation
INFOTEC	Technical Information Trust for Industry
INIF	National Institute of Forest Research
INPI	National Institute for Industrial Property

INTI/FTI	National Institute of Technology/Industrial Technology Foundation
INTI/CITEP	INTI's Technological Research Centre for Fishing Industry
IPT	Wood Centre of the Technological Research Institute
ITA	Institute of Food Technology
ITAL	Food Technology Institute
ITINTEC	Institute of Technological Research and Technical Standards
ITP	Fishing Technology Institute
LADIMA	Andean Wood-Engineering Laboratory
LANFI	Laboratories for Industrial Development
MCCA/ICAITI	Central American Common Market/Central American Research and Industrial Technology Institute
NCSR	National Council for Scientific Research